



PROMOTIONAL PROFILE

HORIZON EUROPE

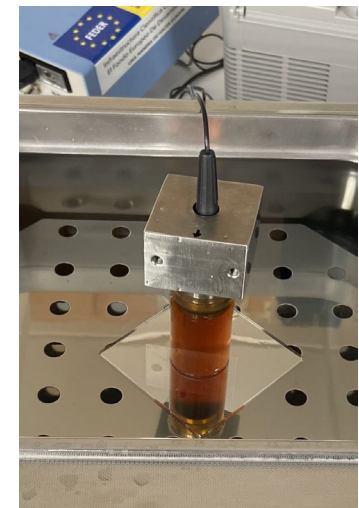
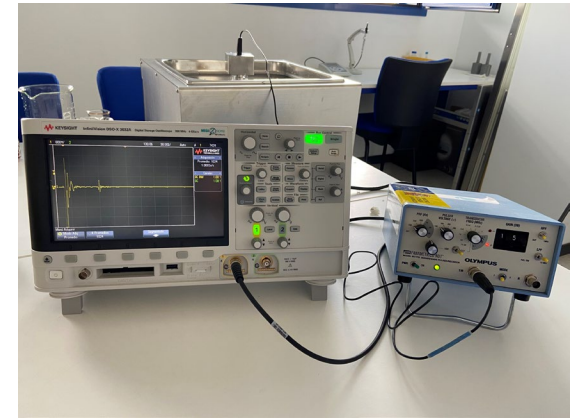
RESEARCH GROUP:
Non-Ionizing
Radiation and
Ultrasonic
Inspection Group
(NIRUIG)



WHO WE ARE

(Research group description – maximum 700 characters with spaces)

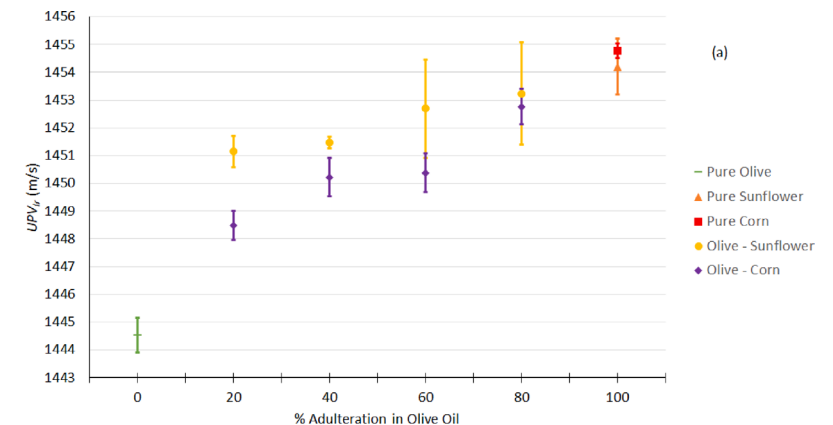
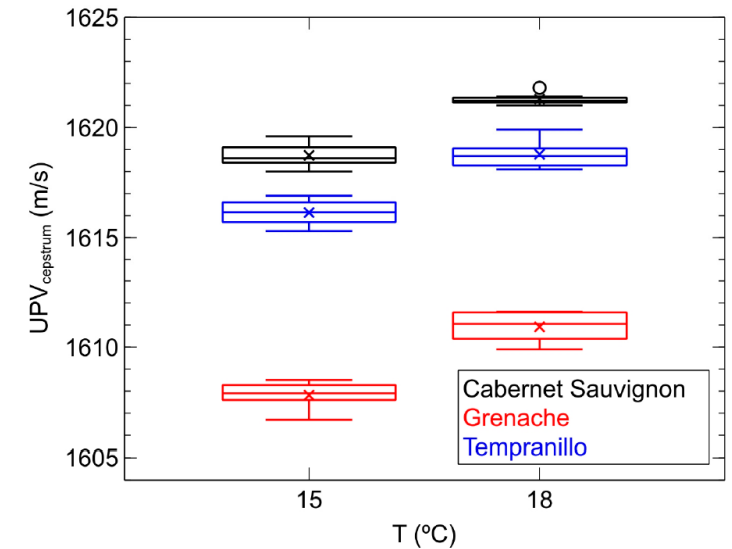
- The Non-Ionizing Radiation and Ultrasonic Inspection Group (NIRUIG), based at the University of Extremadura (Spain), is composed of five permanent researchers.
- We have developed novel non-destructive ultrasonic methods for food quality control, enabling real-time, in-line analysis without waste. Our work has resulted in high-impact publications (e.g., Ultrasonics, J. Dairy Sci., Food Control) and participation in national and regional projects over the past 25 years.
- Using these ultrasonic techniques represents an innovation as a complement or alternative to traditional techniques. Our approach thus combines Acoustics and Food Science to achieve sustainable, fraud-resistant food production.



WHAT WE OFFER

(expertise, infrastructures and skills offered – maximum 700 characters with spaces)

- We apply Acoustics to Food Science through non-destructive ultrasonic methods.
- Our technique identifies acoustic parameters—related to wave speed, attenuation, and frequency content—transmitted through food. This 'acoustic DNA' enables food characterization and helps detect potential adulteration or fraud.
- These methods preserve physicochemical and sensory properties while enabling fast, low-cost, portable, automated, and waste-free analysis, fully aligned with green and white chemistry principles.
- Our lab at the University of Extremadura is equipped with transducers, pulser-receivers, signal generators, oscilloscopes, and MATLAB-based tools.



OUR INTERESTS IN Horizon Europe or other international calls and why? Please explain how you cover parts of the scope in a topic and what expected results you contribute to and how

Topic of interest: HORIZON-CL6-2025-02-FARM2FORK-09 – *Strengthening the EU crop breeding research and innovation ecosystem*

Our contribution:

We apply non-destructive ultrasonic methods to characterize crops and assess parameters linked to resilience, sustainability, and adaptability. These techniques support innovation in plant breeding by enabling fast, non-invasive analysis across a variety of agri-food products.

Expected outcomes:

Improved coordination of crop breeding research, stronger public–private cooperation, and accelerated market access for improved varieties.

Policy alignment:

Our approach supports the European Green Deal, the EU Climate Law, and the EU biotech strategy, promoting climate-resilient, low-emission, and resource-efficient agri-food systems.



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